

Title (en)
METHOD AND APPARATUS FOR DETERMINING ABSOLUTE POSITION OF A TIP OF AN ELONGATE OBJECT ON A PLANE SURFACE WITH INVARIANT FEATURES

Title (de)
VERFAHREN UND VORRICHTUNG ZUR BESTIMMUNG DER ABSOLUTEN POSITION EINER SPITZE EINES LÄNGLICHEN OBJEKTS AUF EINER EBENEN FLÄCHE MIT UNVERÄNDERLICHEN MERKMALEN

Title (fr)
PROCEDE ET APPAREIL PERMETTANT DE DETERMINER LA POSITION ABSOLUE D'UNE POINTE D'OBJET ALLONGE SUR UNE SURFACE PLANE A CARACTERISTIQUES INVARIANTES

Publication
EP 1706314 B1 20190807 (EN)

Application
EP 04818087 A 20041222

Priority
• US 2004043645 W 20041222
• US 74537103 A 20031222

Abstract (en)
[origin: US2005133700A1] A method and apparatus for determining a pose of an elongate object and an absolute position of its tip while the tip is in contact with a plane surface having invariant features. The surface and features are illuminated with a probe radiation and a scattered portion, e.g., the back-scattered portion, of the probe radiation returning from the plane surface and the feature to the elongate object at an angle tau with respect to an axis of the object is detected. The pose is derived from a response of the scattered portion to the surface and the features and the absolute position of the tip on the surface is obtained from the pose and knowledge about the feature. The probe radiation can be directed from the object to the surface at an angle sigma to the axis of the object in the form of a scan beam. The scan beam can be made to follow a scan pattern with the aid of a scanning arrangement with one or more arms and one or more uniaxial or biaxial scanners. Angle tau can also be varied, e.g., with the aid of a separate or the same scanning arrangement as used to direct probe radiation to the surface. The object can be a pointer, a robotic arm, a cane or a jotting implement such as a pen, and the features can be edges, micro-structure or macro-structure belonging to, deposited on or attached to the surface which the tip of the object is contacting.

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